REMARKS

Reconsideration of the application in light of the following amendments and remarks is respectfully requested.

Claims 1-22 are pending. Independent Claims 1 and 14 have been amended to clarify that the partially pre-activated catalyst which is transferred into the reactor has been partially activated with one or more Lewis Acids such that the molar ratio of the Lewis Acid to the electron donor in the partially pre-activated catalyst precursor transferred into the reactor is about 0.1:1 to about 0.3:1. Support for these amendments may be found, for example, in the claims as originally filed.

New Claim 22 has been added to further clarify that in an embodiment of the presently claimed invention, a polymer comprising ethylene produced according to the process of claim 1 has a quantity of fines that is at least 10 percent less than the quantity of fines in a polymer produced under a comparative process under the same conditions except that the comparative process does not include the partial pre-activation of the catalyst precursor according to step (5) of the process of claim 1. Support for this amendment may be found, for example, at Page 18, lines 30-31 of the application as filed. Accordingly, no new matter has been added.

Claim Rejections Under 35 USC §103 (a)

Claims 1-21 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,290,745 to Jorgensen *et al.* (hereinafter Jorgensen-745) in view of U.S. Patent No. 6,617,405 to Jorgensen (hereinafter Jorgensen-405.) Applicants respectfully disagree.

Applicants wish to thank Examiner for clarification of previous remarks regarding the cited prior art in Examiner's remarks of May 29, 2008. The Action maintains that Jorgensen-4745 expressly teaches the partial action of the catalyst precursor. In the Action dated December 3, 2007, the Action notes:

> "Example 1 of Jorgensen '745 demonstrates gas phase ethylene polymerization process in a fluid bed reactor system in the presence of

spray dried Ziegler catalyst prepared by (i) mixing magnesium and titanium tetrachloride in THF to provide a catalyst precursor solution, (ii) adding silica filler to the catalyst precursor solution to form a slurry, (iii) spray drying the catalyst precursor slurry in nitrogen gas at temperature ranging from 140 to 100 °C to provide discrete catalyst precursor particles, (iv) mixing the discrete catalyst precursor particles in mineral oil, and (v) partially activating the catalyst precursor particles with tri-n-hexylaluminum in mineral oil for ½ hour with tri-n-hexylaluminum/ THF mole ratio of 0.2, sequentially, activating the partially activated catalyst particles with diethylaluminum chloride for 1 hour with diethylaluminum chloride/THF mole ratio of 0.45 to provide an activated catalyst particles, and (vi) by adding additional amount of triethylaluminum and the partially activated catalyst composition to the reactor and conducting ethylene polymerization in the gas phase reactor. The Lewis acid activator to electron donor ratio of Example 1 is (0.2+0.45)/1 which is not in the range of the instant claims. However, Jorgensen '745 also expressly teaches that the Lewis activator to electron donor ratio of 0.1:1 to 1:1 in order to partially activating the catalyst precursor (col. 6, lines 41-65). **Therefore, it would have been obvious to conduct the partial activation by using Lewis activator to electron donor ratio anywhere in the range of 0.1 :1 to 1 :1 such as 0.1 :1 to 0.3:1 since such is disclosed in Jorgensen '745 unless there is showing of criticality and unexpected results.**

While Jorgensen '745 does not disclose conducting partial activating the catalyst cursor by employing one or more in-line static mixers, using a in-line static mixer to activate catalyst composition is known at the time of the invention and such is disclosed in Jorgensen '405 (col. 5, line 36 to col. 6, line 27). Using in-line static mixer prevents the activated catalyst from been exposed and thus maximizes the catalyst activity.

Thus, it would have been obvious to a skilled artisan at the time the invention was made to employ in-line static mixers containing reactor of Jorgensen '405 to conduct the polymerization of Jorgensen '745 by partially activating the catalyst precursor in the in-line static mixers with Lewis activator to electron donor ratio anywhere in the range of 0.1 : to 1 : 1 such as 0.1 : to 0.3:1 to maximize catalyst activities and in the absence of any showing criticality and unexpected results" (Emphasis added.)

Applicants recite among other things a gas phase olefin polymerization process comprising the step of partially pre-activating the catalyst precursor by contacting the recited slurry with one or more Lewis Acids employing one or more in-line static mixers, wherein the

molar ratio of the Lewis Acid to the electron donor in the catalyst precursor is about 0.1:1 to about 0.3:1; and transferring the partially pre-activated catalyst precursor under plug-flow conditions into a gas phase, olefin polymerization reactor, wherein the partially pre-activated catalyst precursor transferred into the reactor has been partially activated with one or more Lewis Acids such that the molar ratio of the Lewis Acid to the electron donor in the partially pre-activated catalyst precursor transferred into the reactor is about 0.1:1 to about 0.3:1, and adding an additional amount of the activator to the reactor in an amount sufficient to produce a homogeneous activated catalyst mixture, wherein the catalyst is partially pre-activated for a short residence time to minimize deactivation of the catalyst of about 1 minute to about 6 hours prior to the transferring step.

The Action recognizes that Jorgensen-745 fails to disclose or suggest Applicant's recited limitation that the partially pre-activated catalyst precursor transferred into the reactor be partially activated with one or more Lewis Acids such that the molar ratio of the Lewis Acid to the electron donor in the partially pre-activated catalyst precursor transferred into the reactor is about 0.1:1 to about 0.3:1.

Applicants' recited process results in an unexpected reduction in fines (i.e., a showing of criticality and unexpected results), as compared to the process of Jorgensen-745 and Jorgensen-405, wherein the reactor is "topped off" with additional activator. As also discussed previously, Jorgensen-405 fails to cure the defects in Jorgensen-745. In Examples 1-4, Jorgensen-405 discloses a catalyst precursor preactivated using about 0.2 mole of a first activator and 0.45 moles of a second activator for a total of 0.65 moles activator per mole of electron donor (see Col. 12, lines 1-13, Jorgensen-405.), Jorgensen-405 is thus outside of Applicants recited range of 0.1:1 to 0.3:1.

Applicants presently claimed invention thus differs from the cited prior art in that Applicants' recite a catalyst that is only partially activated with the Lewis Acid at a molar ratio of the Lewis Acid to the electron donor in the catalyst precursor of about 0.1:1 to about 0.3:1. Applicants show that this novel and non-obvious partial pre-activation, which is in conflict with the cited prior art, results in the unexpected benefit of a lowering of fines in the final product. Accordingly, Applicants' presently claimed invention is not rendered obvious by Jorgensen-745 in combination with Jorgensen-405. Removal of the rejection is respectfully requested.

Claim Rejections Under 35 USC §102 (b)

The Action maintains the rejection of the instant claims as being anticipated by, or rendered obvious over U.S. Patent No. 6,187,866 to Jorgensen *et al.* (hereinafter Jorgensen-866.)

Jorgensen-866 is generally directed to a process for the in situ blending of polymers comprising contacting ethylene and one or more comonomers in two or more fluidized bed reactors with a catalyst system comprising (i) a magnesium/titanium based precursor containing an electron donor and (ii) a hydrocarbyl aluminum cocatalyst, the improvement comprising (A) increasing or decreasing the melt flow ratio and/or molecular weight of the blend by, respectively, decreasing or increasing the mole ratio of a precursor activator compound to the electron donor or (B) increasing or decreasing the bulk density of the blend by, respectively, increasing or decreasing the mole ratio of a precursor activator compound to the electron donor, both (A) and (B) subject to defined provisos including partial pre-activation of the precursor.

The Action notes that the rejection is based on Table III of Col. 15 for Example 5 of Jorgenson-866. Example 5 discloses a two reactor system, wherein the partially activated precursors are utilized in a first reactor and then the reaction mixture is transferred into the second reactor wherein the catalyst is fully activated (See Col. 13, line 45-49 for a description of the Examples.) Example 5 discloses two reactors along with data for those two reactors. Jorgensen-866 fails to disclose or suggest Applicants' recited step of partially pre-activating the catalyst precursor by contacting the slurry with one or more Lewis Acids employing one or more in-line static mixers, and transferring the partially pre-activated catalyst precursor under plug-flow conditions into a gas phase, olefin polymerization reactor and adding an additional amount of the activator to the reactor to produce a homogeneous activated catalyst mixture. Applicants have amended the claims to further clarify that the catalyst transferred to the reactor is only partially activated, in contrast to Jorgensen-866. Since Jorgensen-866 fails to disclose or suggest all of Applicants' recited limitations, Jorgensen-866 cannot reasonably be found to anticipate nor obviate Applicants' presently claimed invention.

Applicants respectfully request that all rejections be withdrawn and solicit a prompt notice of allowability. In the alternative, Applicants invite the Office to telephone the undersigned attorney if there are any other issues outstanding which have not been presented to the Office's satisfaction.

Respectfully submitted,

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